



ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PMPOA530T0

Data Sensitivity: Yes

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

NAME: *Puccinellia parishii*

COMMON NAME: Parish's Alkali Grass

SYNONYMS:

FAMILY: Poaceae

AUTHOR, PLACE OF PUBLICATION: A.S. Hitchcock, Proc. Biol. Soc. Wash. 41: 157-158. 1928.

TYPE LOCALITY: Rabbit Springs, San Bernardino County, California.

TYPE SPECIMEN: HT: US-906851. S.B. Parish 9799, 24 April 1915.

TAXONOMIC UNIQUENESS: The species *parishii* is 1 of 28 in the genus *Puccinellia*.

DESCRIPTION: Annual dwarf grass, 7.5-20.0 cm (3.0-8.0 in.) tall and **bluish-green in color**. Culms (hollow stems) are 2.0-20.0 cm (1.0-8.0 in.) long, 1-25 in number, strictly ascending at 20 to 60 degrees; sheaths open to the base. The ligules are 1.0 to 3.0 mm long, membranous, acute, and entire. Leaf blades are 1.0-3.0 cm (0.5-1.75 in.) long, contracted, on appressed branches. The inflorescence is on stalk; spikelets 2-6 flowered. The florets disarticulate above the glumes; glumes much shorter than the lemmas, and sharply acute. Lemmas are 1.5-2.0 mm long, rounded across the back, finely pubescent on the nerves. Flowers are perfect; anthers 0.25-0.75 mm long (Soreng 1986).

AIDS TO IDENTIFICATION: *Puccinellia parishii* is taller and has more culms at the base than *P. simplex*. *P. parishii* is diploid and *P. simplex* is octaploid. *Puccinellia distans* and *P. airoides* can grow in the same habitat, but they are perennials, have wider leaves, and lack pubescence on the lemma nerves. *Poa annua* is a small annual with pubescence on the lemma nerves, but the leaves are wider and boat-shaped at their tips.

ILLUSTRATIONS: Line drawing by Robert DeWitt Ivey in New Mexico Natural Heritage Program files.

Color photo (Hevron *in* Kelly 1994)

Line drawing (Kelly 1994)

Color photo (Hevron *in* Falk et al. 2001)

Line drawing (Falk et al. 2001)

Color photo (In <http://nmrareplants.unm.edu/reports/pucpar.htm>)

Color photo (Robert Soreng in

[http://plants.usda.gov/cgi\\_bin/plant\\_profile.cgi?symbol=PUPA](http://plants.usda.gov/cgi_bin/plant_profile.cgi?symbol=PUPA)).

**TOTAL RANGE:** Historically five small, widely disjunct sites from California, Nevada, Arizona and New Mexico.

**RANGE WITHIN ARIZONA:** Near Shonto and Tuba City, Navajo Nation, Arizona. The Shonto site is considered extirpated. The site near Tuba City is very disturbed, possibly extirpated. At least 5 extant locations on the Navajo Nation including Echo Cliffs and north of the Carrizo Mountains (Coconino and Apache Counties). Also a population was located in Yavapai County in a tributary to Little Shipp Wash.

## **SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Herbaceous annual.

**PHENOLOGY:** Short lived winter or spring annual, flowering April - May; quickly setting seed and drying up with late spring drought. Reproduction and dispersal is abiotic, wind and water facilitated.

**BIOLOGY:** Numbers of plants of up to a few thousand are possible, depending on favorable spring water flows; seeds may survive for an undetermined number of years in the seedbed if dry conditions prevail.

**HABITAT:** Open saline area below perennially flowing spring; moist soils with salty crust and without dense vegetative cover, downstream from willows (*Salix gooddingii*) which are present at the spring. After about 200 m the flow goes underground and the trees stop. Downstream a few meters moisture re-emerges to the surface, perhaps enhanced by additional seepage at the site, evaporating and leaving a very saline microhabitat. It is in these moist saline areas that the plants are found.

**ELEVATION:** 2,780 - 7,350 ft. (850 - 2,240 m).

**EXPOSURE:** Open, flat, all aspects.

**SUBSTRATE:** New Mexico: sandy clay loam of Stellar-Mohave Association from Kneeling Nun Tuff parent material. Arizona: marshes (McDougall 1973); site in Yavapai County described as "saline soils on muddy flats in cienega."

**PLANT COMMUNITY:** New Mexico: Saltgrass Series of Chihuahuan Interior Marshland, adjacent to Semidesert Grassland. Associated with *Anemopsis californica* (Yerba Mansa),

*Distichlis stricta* (inland saltgrass), *Eleocharis parishii* (Parish's spikerush), *Juncus* spp. (rush), *Salix gooddingii* (Goodding willow), and *Sporobolus airoides* (Alkali sacaton). Arizona: associated with *Eleocharis* sp. (spikerush), *Juncus balticus* (Baltic rush), *Juniper*, *Oxytenia acerosa* (copperweed), *Phragmites australis* (common reed), *Sarcobatus vermiculatus* (black greasewood), *Scirpus* sp. (bulrush), *Sporobolus airoides*, *Tamarix* (tamarisk), *Pinus edulis* (pinyon pine), and *Purshia* sp. (cliff-rose). Site in Yavapai County occurs in Arizona upland Sonoran desertscrub with many Mohave desert and desert grassland species.

**POPULATION TRENDS:** This rare species appears to have declined during the past 40 years due to loss of habitat. The only location without serious habitat alteration or disturbance is at Faywood Hot Springs, New Mexico. This population occupies less than 8 hectares. The one California population (San Bernardino County) is extirpated. The population in Clark County, Nevada is located within a highway cloverleaf, its status is unknown.

In Arizona, the site at Shonto, Navajo Nation, was collected at a spring in 1948; the area has been heavily grazed and the springs are now dry. This site is presumed extirpated. The population near Tuba City, Navajo Nation, was last observed in a marshy area in 1987; the area has been used for farming and was plowed under by 1989. One site north of Carrizo Mountains on the Navajo Nation (Apache County) appears to be possibly maintained by grazing, which keeps competition with other plants to a minimum; not found with dense sweet clover on outside of fence line.

## **SPECIES PROTECTION AND PRESERVATION**

### **ENDANGERED SPECIES ACT STATUS:**

None (USDI, FWS 1998)  
[PE (USDI, FWS 1997)]  
[PE USDI, FWS 1996]  
[PE USDI, FWS 1994]  
[C1 USDI, FWS 1993]  
[C2 USDI, FWS 1990]

### **STATE LIST STATUS:**

Highly Safeguarded (ARS, ANPL 1999)  
Highly Safeguarded [ARS, ANPL 1993]

### **OTHER STATUS:**

Forest Service Sensitive (USDA, FS Region 3, 1999)  
[Forest Service Sensitive, USDA, FS Region 3, 1990]  
Group 4, (NNDFW, NESL 2001, 2005)  
[Group 3 (NNFWD, NESL 2000)]

### **MANAGEMENT FACTORS:**

Besides rarity, threats include restriction to unusual, uncommon and vulnerable spring/seep habitat. Farming of the habitat, and surface

disturbance such as trampling by cattle are threats. Ground water pumping could pose a substantial threat to the continued existence of this species. The New Mexico population is threatened by mining, and the Rosamond Dry Lake population is close to a road and remains vulnerable to accidental disturbance.

**CONSERVATION MEASURES TAKEN:** New Mexico: Landowner is aware of the existence of the plant and sensitivity of the site and he restricts access to the site.

**SUGGESTED PROJECTS:** Biologists working at wetland sites should be alerted to the possibility of discovering new sites in the course of their investigations.

**LAND MANAGEMENT/OWNERSHIP:** BIA - Navajo Nation; Arizona State Land Department.

## **SOURCES OF FURTHER INFORMATION**

### **REFERENCES:**

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**ADDITIONAL INFORMATION:**

It is possible that the species is not especially vulnerable to certain kinds of habitat disturbance. It appears to survive trampling due to cattle. As an annual, it can apparently survive drought periods as a dormant seed for an unknown length of time, which possibly buffers it from ephemeral drying out of its habitat. Its small size and the short duration of its active life cycle make it less likely to be discovered at new sites than larger, showier, or longer-lived species.

Presumed to be a relict species from the Holocene, persisting along the saline edges of drying lakebeds.

A specimen at Arizona State University (No. 9237) collected from along Aravaipa Creek has been identified as *P. parishii*. This specimen requires re-verification. However, until then it will be considered in error.

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